



Scottish Government / SEPA

**Scottish Flood Defence Asset
Database Website**

User Guide

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JBA Consulting
Port Neuk
1 Longcraig Road
SOUTH QUEENSFERRY
Edinburgh
EH30 9TD
UK
t: +44 (0)131 319 2940
f: +44 (0)131 319 2944
www.jbaconsulting.co.uk

Flooding Policy Team
Scottish Government - Water,
Air, Soils & Flooding
Victoria Quay 1-H (North)
Edinburgh
EH6 6QQ

t: 0131 244 0737
f: 0131 244 0259

SEPA Corporate Office
Erskine Court
Castle Business Park
STIRLING
FK9 4TR

Tel: 01786 457700
Fax: 01786 446885
SFDAD@sepa.org.uk

REVISION HISTORY

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Original March 2006		Website
Updated - version 2 Mar 2009	Amended for website upgrades	Website
Updated – version 3 May 2012	Changes to Section 2 to acknowledge the handover of database responsibility to SEPA	Website

PURPOSE

This document has been prepared solely as a User Guide for the Scottish Flood Defence Asset Database website. JBA Consulting accepts no responsibility or liability for any use that is made of this document other than by the Scottish Government for the purposes for which it was originally commissioned and prepared.

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APPENDICES:

APPENDIX A: ----- FORM FLOW DESIGN

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ABBREVIATIONS

FPS	Flood Prevention Scheme
GIS	Geographical Information System
JBA	JBA Consulting – Engineers & Scientists
OS NGR	Ordnance Survey National Grid Reference
PDF	Portable Document Format
SEPA	Scottish Environment Protection Agency
SG	Scottish Government

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1 INTRODUCTION

1.1 Scottish Flood Defence Asset Database Project

The Scottish Government (SG) is committed to improving its understanding of flooding in Scotland. Recommendations made in reports on climate change^{1,2} identified a need for a register of fluvial and coastal defences, containing detailed records of assets, defended areas and number of properties protected. On 1 November 2006 SEPA published the Indicative River and Coastal Flood Map (2006), which shows the 0.5% probability risk of flooding for rivers and the coast in Scotland. However, this map contains only limited information about the location of flood defences and does not take flood defences into account when assessing flood risk. The Scottish Flood Defence Asset Database therefore supplements the SEPA Indicative River and Coastal Flood map by showing locations that currently benefit from flood prevention schemes to mitigate against the risk of flooding.

The Scottish Government has funded 72 Flood Prevention Schemes since the Flood Prevention (Scotland) Act 1961³. All schemes promoted under the 1961 Act are described as Flood Prevention Schemes (FPS), however, due to the nature of flooding most Flood Prevention Schemes provide management of flooding rather than prevent flooding. This project was commissioned to provide a condition and asset database and to establish the defended areas for each of the schemes. Specific objectives were:

- Construct an electronic database of river and coastal flood prevention schemes and provide a GIS interface
- Record the condition of the defences
- Show the area benefiting from the flood defences
- Define defended and undefended areas for a range of return period events
- Establish the current standard of protection
- Determine the number and value of properties benefiting from the defences

The database includes the detailed location, type and condition of defences, the flood outlines, defended areas, defence photos, as-built drawings of schemes, details of schemes including information on the level of protection, construction costs and date of construction, benefits in terms of numbers of properties protected and the value of these, scheme contacts and the Local Authority area, the maintenance regime and frequency of inspection.

It is intended that the defended areas will eventually be shown as an additional layer on the SEPA flood maps. The database and maps are available to all the Local Authorities, SEPA and Scottish Government as an integrated flood risk information system over the web. The database also identifies flood defences that the Local Authorities have knowledge of that have not been constructed as a formal Flood Prevention Scheme (FPS).

The current project calls for fluvial and coastal defences to be recorded but does not refer specifically to schemes promoted as erosion or coastal protections schemes under the Coastal Protection Act 1949 which may also provide flood protection. It is likely that a number of Coastal Protection schemes will provide an element of flood protection.

In order to populate the database over half the schemes were reviewed in detail and a report on those schemes is also available. These reports have been added to the website as part of the 2009 updates to the database. A full list of those schemes with reports is shown overleaf.

¹ Climate change Scottish Implications Scoping Study 1999 Scottish Executive Kerr et al.

² Climate Change review of level of protection offered by Flood Prevention Schemes 2001 Scottish Executive D J Price and J E McKenna.

³ Flood Prevention Act 1961. HMSO

1.1.1 List of schemes assessed by study

Schemes assessed further as part of the SFDAD scheme	Inspection Report available	Scheme Report available
Aberlour - Moray FPS 1982	Yes	Yes
Arbroath (Brothock Water) FPS 1985	Yes	Yes
Auchtermuchty FPS 1996	Yes	Yes
Bridge of Allan FPS 1988	Yes	Yes
Bridge of Earn Flood Prevention Scheme 1998	Yes	Yes
Brock Burn & Levernwater FPS 1991	Yes	Yes
Cairneyhill FPS 1982	Yes	Yes
Carnoustie (Barry Burn) FPS 1979	Yes	Yes
Ceres Village FPS 1994 Pitscottie Village FPS 1994	Yes x2	Combined report
Collier Street FPS 1999	Yes	Yes
Conon Bridge Village FPS 1990	Yes	Yes
Dalbeattie FPS 1980	Yes	Yes
Dunshalt Village FPS 1996	Yes	Yes
Denholm FPS 1985	Yes	Yes
Earnhill Road, Gourrock FPS 2001	Yes	Yes
Fettercairn FPS 1984	Yes	Yes
Fort Augustus FPS 1993	Yes	Yes
Galashiels - Netherdale FPS 1987 Galashiels - Plumtree/Wilderhaugh FPS 1987	Yes x2	Combined report
Innerleithen Hall Street FPS 1998	Yes	Yes
Jedburgh - Skiprunning Burn Culvert FPS 1985	Yes	Yes
Jed Water FPS 1987	Yes	No
Kincardine-on-Forth FPS 1991	Yes	Yes
Kirriemuir (Gairie Burn) FPS 1986	Yes	Yes
Largs FPS 2002	Yes	Yes
Lauder Station Yard FPS 1990	Yes	Yes
Lennoxton (Rannie Burn) FPS 1963	Yes	Yes
Linlithgow FPS 2001	Yes	Yes
Millfield of Cupar FPS 1994	Yes	Yes
Moredun Playing Field FPS 1998	Yes	Yes
Parkneuk FPS 1987	Yes	Yes
Peebles - Southpark Area FPS 1987	Yes	Yes
Port Logan FPS 1986	Yes	Yes
Prestonpans FPS 1972	Yes	Yes
River Gryfe, Crosslee FPS 2001	Yes	Yes
Turfford Burn FPS 1967 (Earlston)	Yes	Yes
Well Road Moffat FPS 1985	Yes	Yes

1.2 Website and GIS Interface

This website has been developed as part of the Scottish Flood Defence and Asset Database project commissioned by the Scottish Government. The work was carried out by JBA. Since May 2012 the SEPA SFDAD team has taken on the administration duties of the SFDAD from the Scottish Government Flooding Policy team.

The aim of this website is to provide users with a tool to view the FPS and their associated assets within Scotland. This aim has been achieved by developing a web based Geographic Information System (GIS) through which a user can locate and view information on flood and coastal assets in Scotland.

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2 ACCESSING THE SITE

2.1 The Website

The site can be found at the following address:

<http://www.scottishflooddefences.gov.uk>

To access the information on this site you must have a username and password. If you are a flood prevention practitioner or other professional engaged in flood mitigation and prevention activities and have not been issued a username and password, please contact the SEPA SFDAD team with your name, address and main area of interest regarding flooding, e.g. academic study, engineering consultancy, hydrology.

The SEPA SFDAD team:

Phone: 01786 452634

Email: SFDAD@SEPA.org.uk

Since May 2012 the SEPA SFDAD team has taken on the administration duties of the SFDAD from the Scottish Government Flooding Policy team.

General inquiries regarding this website and its operation should be directed to the webmaster: sfdad@jbaconsulting.co.uk

2.2 The Welcome Screen



The welcome screen displays a brief introduction to the website and the project with links to sources of more in-depth information on specific areas of the project.

This screen is also where the user must login before using the site.

Additional information on the study and study outputs is available in the link on the right. This provides access to the summary report for the study and this user manual.

2.3 Logging In



A login form titled 'LOGIN DETAILS' with a blue background. It contains two input fields: 'USERNAME' with the text 'user' and 'PASSWORD' with black dots. Below the fields is a 'LOGIN' button.

If you have forgotten your username or password please contact the webmaster:

sfdad@jbaconsulting.co.uk

In order to gain access to the site a user must login. This is done by entering their username and password as shown opposite and clicking the 'Login' button.

The password is displayed as black dots for security reasons. Also remember the password is case sensitive.



Should the user fail to provide a username or password a dialog box will be displayed requesting the missing information.



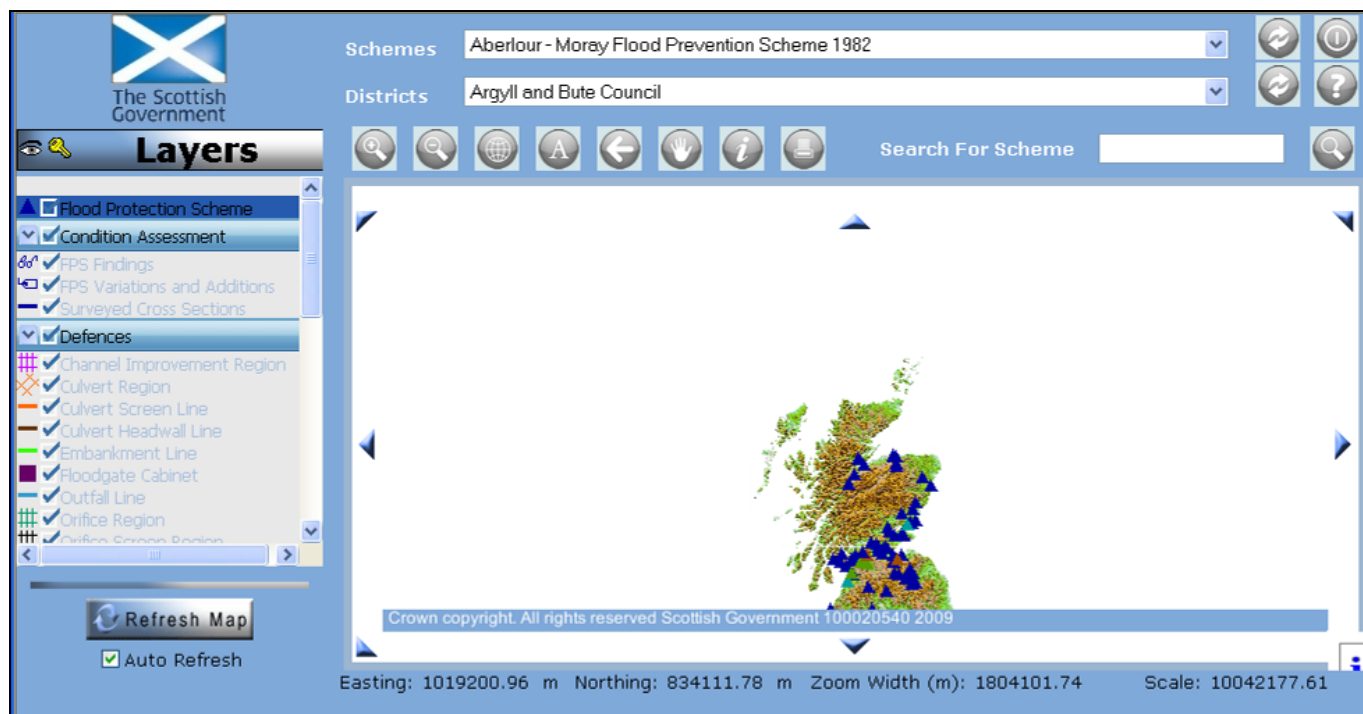
Should the user enter the incorrect details a dialog will be displayed informing the user they have been denied access to the site.

3 THE MAIN SCREEN

3.1 The Main Window

If the map window does not display or the map window show 'retrieving map' continuously, please try the following.

- 1 - make sure your **pop up blocker is turned off**.
- 2 - try pressing control and F5 at the same time prior to logging in, to remove any cache.



Once successfully logged in the user will be presented with the map screen. This screen is split into three main sections:



1. The Layer list on the left hand side of the screen,
2. the toolbar and list of Schemes/Local Authorities selection boxes at the top of the screen,
3. and the main map window.

Each of these sections will be covered in more detail in the following sections.


The main map window shows the XY coordinates of the cursor (to OS NGR) the map window width (in metres) and the scale of the map window.



3.2 The Layer List




The layers are organised into groups for ease of use. All the groups and the layers they contain are visible on the map by default. To hide an entire group uncheck the box  to the left of the group title. To turn on an entire group select the box  to the left of the group title.



To expand the group select the  icon next to the main group name. This displays all available layers within that group. The user can then choose which layers are visible on the map.

To turn selected layers on or off within a group, open the group and select or deselect the layers you want displayed in the map window. Layers are visible on the map if they have a tick next to their name.  By clicking the check box next to the layer name its visibility on the map can be altered. All of the available layers have a corresponding legend next to the selection box to identify the layer in the map window. Clicking on a layer will make it the "Active Layer". When identifying a layer in the map window, the relevant layer must be active. This is presented as the background colour of the layer turning a darker shade of blue. 

To close a group select the  icon. This will close the group and retain any layer selection.

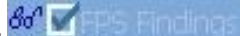
Selecting or unselecting the main group will override any pre-selected layers. The tick box next to the main group name will change depending on the selections within the group:

If all the layers are turned off the box is empty.

If all the layers are turned on the box has a blue tick.

If some of the layers are turned on the box has a grey tick.

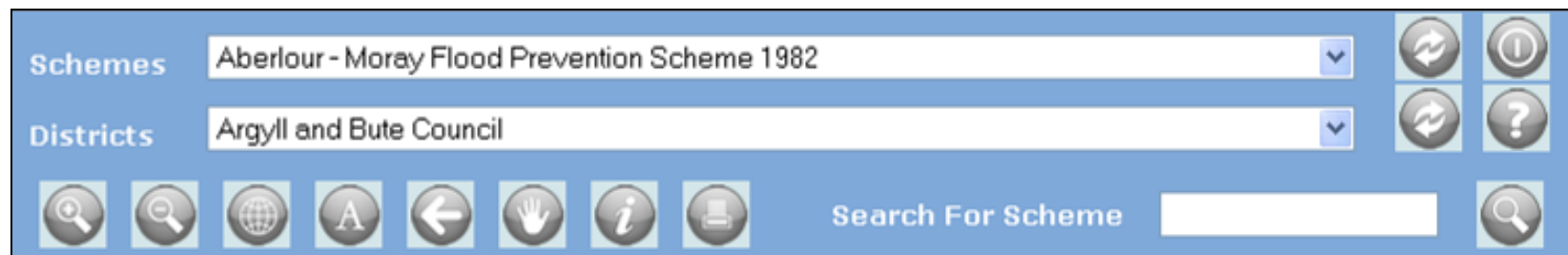


If a layer is visible but not available at a selected zoom level its description will appear grey instead of white. 











Below the layer control list is the Refresh map icon. This will refresh the map window to reflect any changes made to layer visibility. If the 'Auto Refresh' icon below is ticked, then the map will automatically refresh when changes to layer visibility are made. If a number of changes are being made this can result in a less efficient approach.

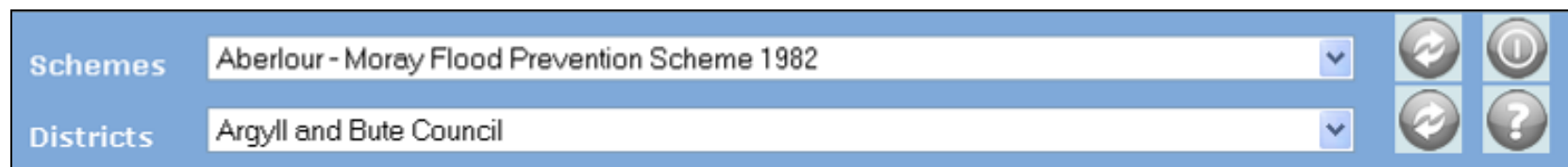
3.3 The Toolbar



Viewing of the schemes and navigation around the map window is accomplished via a series of standard GIS tools. These are displayed at the top of the main window in the toolbar. Hovering over a tool icon with the mouse will display the tool description both in a comment window and in the Internet Explorer 'status bar'.

-  **Zoom in.** Click once to zoom in by a factor of two, selected location moved to centre of screen or draw a rectangle in the map window to zoom to the selected area.
-  **Zoom out.** Click once to zoom out by a factor of two, selected location moved to centre of screen or draw a rectangle in the map window to zoom to the selected area.
-  **Zoom to full extent.** Click once to zoom out to the maximum extent of the project (Scotland).
-  **Zoom to active layer.** Zooms to the extent of the active layer of defence/structure/photo/fault/flood extent.
-  **Zoom to last extent.** Click once to zoom to the previous view.
-  **Pan tool.** Click and drag to centralise the map on a particular area.
-  **Identify tool.** Click to identify a feature or scheme on selected layer. **Ensure that the desired layer is selected in the [layer list](#).** If it is not a "File not Found" error will occur.
-  **Print Tool.** Click to print current map and an accompanying legend.

3.3.1 Dropdown lists



The “List of Schemes” dropdown list provides a quick way of navigating directly to a particular scheme. Each scheme is listed by name and when selected loads the [Data Form](#) for the scheme as well as centring the map on the scheme’s location. The data forms are described in greater detail later in the guide.

A further option to locate schemes is via the “District” dropdown list which provides a quick way of navigating directly to a particular Local Authority district. The relevant district is selected, highlighted in yellow and centred on the map window. When a district is selected it loads the Scheme Form listing all schemes within the selected Local Authority area. The data forms are described in greater detail later in the guide.



The reload button allows the user to reload the [Data Form](#) or [Scheme Form](#) for the selected scheme/district should the form be closed prematurely.



The log out button logs users out of the website and returns users back to the [welcome screen](#).



Help Manual button. Opens this manual from website in a pdf file format.

3.3.2 Search option

Search For Scheme

Search Results for 'Burn'

Authority	Scheme ID	Scheme Name	Town	Watercourse	SE File Reference
ANGU	10SCH	Carnoustie (Barry Burn) Flood Prevention Scheme 1979	Carnoustie	Barry Burn	EDY/T/3
ANGU	12SCH	Kirriemuir (Gairie Burn) Flood Prevention Scheme 1986	Kirriemuir	Gairie Burn	EDY/T/1
GCIT	30SCH	Brock Burn & Levernwater Flood Prevention Scheme	Glasgow	Brock Burn & Levernwater	EDY/S/4
SCOT	34SCH	Turford Burn Flood Prevention Scheme	Earlston	Turford Burn	File not available
D&GA	36SCH	Grange Burn Flood Prevention Scheme	none	Grange Burn	File not available
WDUN	37SCH	Cochno Burn Flood Prevention Scheme	Clydebank	Cochno Burn	File not available
SCOT	55SCH	Jedburgh - Skiprunning Burn Culvert Flood Prevention Scheme 1985	Jedburgh	Skiprunning Burn	EDY/B/2
SLAN	63SCH	Cityford Burn Culvert Flood Prevention Scheme	Rutherglen	Cityford Burn	File not available
FALK	64SCH	Grangeburn Road Flood Prevention Scheme	Grangemouth	Grange Burn	File not available
MORA	65SCH	Bank of Rothes Burn Flood Prevention Scheme	Rothes	Rothes Burn	File not available
D&GA	66SCH	Craigieknowe Burn Flood Prevention Scheme	Barnbarroch	Craigieknowe Burn	File not available
D&GA	68SCH	Powerburn, Kirkconnel Flood Prevention Scheme	Kirkconnel	Kello	File not available
CEDI	74SCH	Water of Leith (Roseburn) Flood Prevention Scheme	Edinburgh	Water of Leith	EDY/L/5
MORA	76SCH	Tyock Burn Flood Prevention Scheme	Elgin	Tyock Burn	File not available
ABER	7SCH	Inverurie (Strathburn and Over Burn) Flood Prevention Scheme	Inverurie	Strath Burn and Over Burn	EDY/G/4
GCIT	80SCH	Yoker Burn Flood Prevention Scheme		Yoker Burn	File not available
ABER	9SCH	Overburn Culvert, Inverurie Flood Prevention Scheme 2001	Inverurie	Over Burn	WYF/3A/39

The Search tool allows a user to search for a scheme by name. By entering either a full or partial search expression in the edit box and clicking the search button a list of matching schemes will be displayed.

Selecting one of these schemes works in the same way as selecting a scheme from the “List of Schemes” above, in that the map is centred on the selected scheme and the [Data Form](#) populated with data for that scheme is loaded.

3.4 Scheme form

Local Authority Details As Recorded by JBA				
Name	Fife Council			
Contact	01592 413514			
Department	Flood Prevention & Coast Protection			

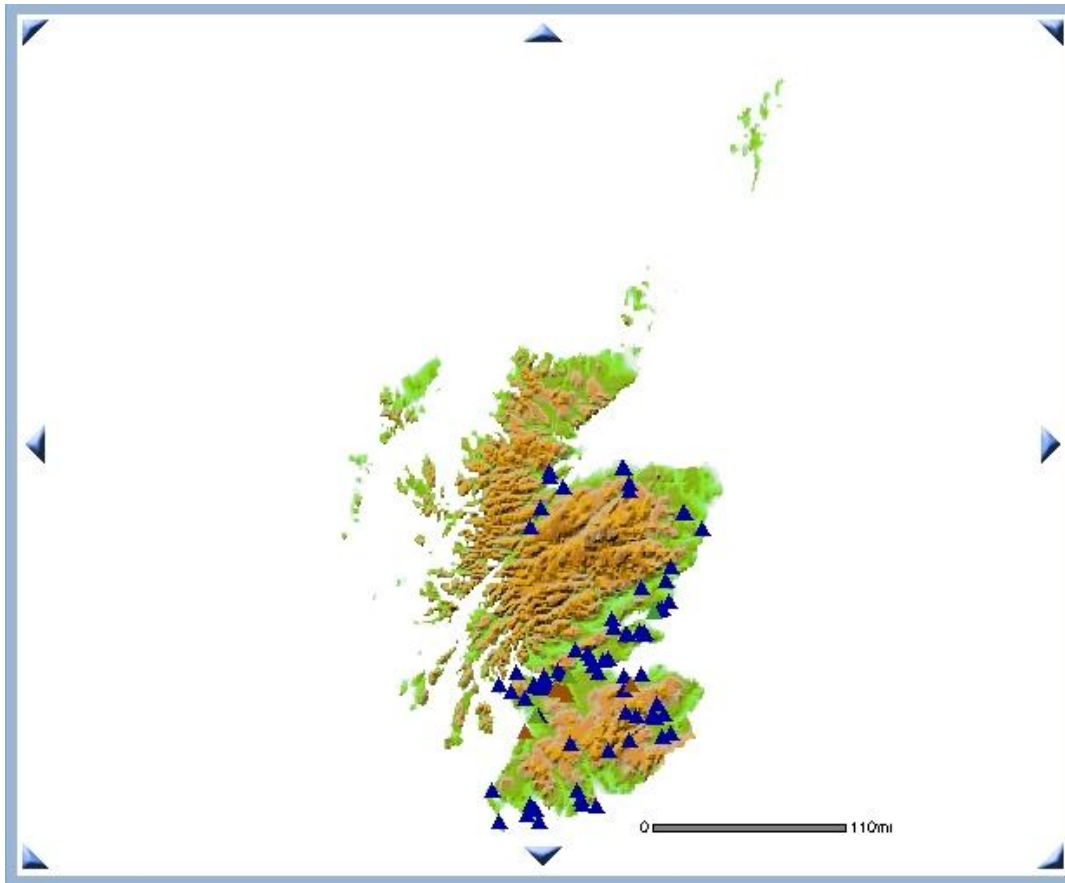
Flood Protection Scheme Details As Recorded by JBA				
Scheme Name	Watercourse	Town	Length of Scheme (km)	Description
Kincardine-on-Forth Flood Prevention Scheme 1991	Peffermill Burn	Kincardine	2.88	Flood outflow diversion, construction of new culverts, improvements to existing channels. Flood water is diverted around Kincardine.
Dunshalt Village Flood Prevention Scheme 1996	Surface run-off	Dunshalt	0.874	Replacement of existing steel culvert with concrete pipe, reinstatement of open ditch and clearing of all ditches and culverts Local measures to protect from ditch, properties still likely to be at risk from Auchtermuchty Burn or River Eden.
Millfield of Cupar Flood Prevention Scheme 1994	Surface run-off	Cupar	0.301	New length of box culvert added in three parts from old lade, underneath the railway line to existing lade. Old lade and Ditch cleaned, regraded and trees and shrub growth removed. Manholes replaced and added onto culvert.
Ceres Village Flood Prevention Scheme 1994	Ceres Burn, Craighrothie Burn and Latch Burn	Ceres village	0.514	Ceres village is located in the area of confluence of the Ceres Burn, the Craighrothie Burn and the Latch Burn. In 1992 water in these burns rose and flooded the village. The operations include flood walls, embankments, the raising of bridges and channel improvements to mitigate flood events. The scheme is designed to deflect water in Bow Butts and Main Street, prevent overtopping on the village side of the Ceres Burn, improve channel flows and prevent overspill from the Latch Burn.
Pitscottie Village Flood Prevention Scheme 1994	Ceres Burn, Kininmonth Burn and Blebo Burn	Pitscottie	0.782	Regrading and construction of flood embankments. The raising and strengthening of existing of walls along the Ceres Burn and Blebo Burn including wall mounted flap valves on the Blebo Burn. The flood prevention order also included the removal of debris and deposits of bushes and scrub timber from banks (excluding mature trees) from the Ceres Burn, Kininmonth Burn and Blebo Burn and some bed regarding.
Parkneuk Flood Prevention Scheme 1987	Baldrige Burn	Dunfermline	0.293	The scheme incorporates a new culvert, associated manholes, collecting channel and silt trap between West Baldrige and Braigh Gardens, and channel improvements and pipework at Blackburn Avenue In addition to the works carried out under the FPO, council contact stated that improvements to the culvert beneath A907 were made by the roads department but these are not shown as part of the scheme.
A weir at the upstream extent of the scheme incorporates an overflow				

Done Internet

The Scheme Form lists all schemes within the selected Local Authority area.

The Scheme Form can be loaded by two alternative methods: either directly from the "List of Schemes" [dropdown list](#), or by clicking on the Authority Name in [the data form header](#).

3.5 The Map Display



The contents of the map display are dictated by the layer control and navigation around the window is controlled using the toolbar. Both of these topics are covered in detail in earlier sections of the guide. In addition to the toolbar the map can be navigated around using the arrows or bars located at the edges of the screen.



Clicking either the bar or the arrow will pan the map in the direction indicated.

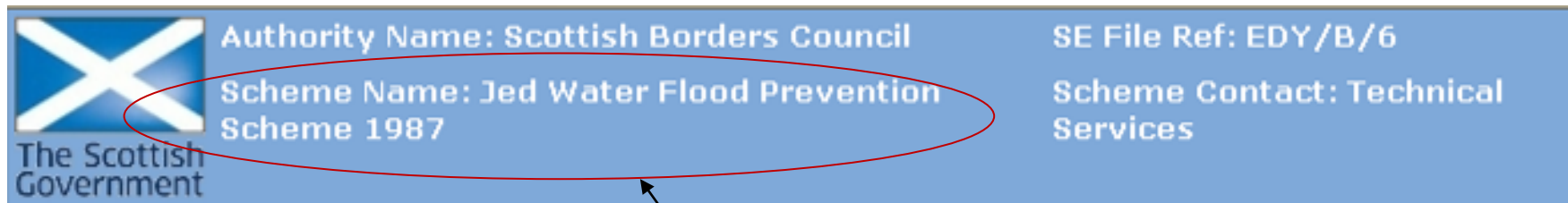


Clicking items on the map when the “Identify” tool is selected and when the item’s layer is active, results in the Data Form for that item being loaded. If a photograph icon is clicked on the map and the photographs layer is set to active then the photograph will be displayed in a pop up window.


The map window has four main types of background maps (in addition to the national relief map) available to help provide data regarding the location of schemes and defences. Examples of each can be found below.

4 THE DATA FORMS

4.1 The Data Form Header



The screenshot shows a blue header bar with the following content:

	Authority Name: Scottish Borders Council	SE File Ref: EDY/B/6
	Scheme Name: Jed Water Flood Prevention Scheme 1987	Scheme Contact: Technical Services

A red oval highlights the 'Scheme Name' and 'Authority Name' fields. An arrow points from the text below to the 'Scheme Name' field.


All of the data forms share a common header. This header contains details regarding the Authority Name, Scheme Name, SE File Reference and Scheme Contact.

The Scheme Name and Authority Name also serve as navigation links. Clicking on the Scheme Name will display the Scheme Defence Form. Clicking on the Authority Name will load the Schemes Form which lists all schemes in that district.




This and all other navigation routes around the forms are illustrated in the Form Flow Diagram in Appendix A.

4.2 The Data Form

http://www.scottishflooddefences.gov.uk - Data Forms Frame - Windows Internet Explorer provided by JBA Consulting

 Authority Name: Angus Council
Scheme Name: Arbroath (Brothock Water) Flood Prevention Scheme 1985
SE File Ref: EDY/T/2pt2
Scheme Contact: Roads Department (Engineering)


Flood Protection Scheme Summary	
Bridge	14
Channel Improvement	22
Culvert	4
Embankment	1
Wall	32
Surveyed Cross Sections	49

Documents	
List of Operations	
Condition Assessment Report	
SFDAD Report	

Flood Protection Scheme Details As Recorded by JBA	
FPS Description	The operations include a coarse screen at St. Vigeans Junction, flood walls and parapet walls, raised bridges, waterproofing buildings, modify existing culvert, channel improvements including clearing, regrading and realignment of bed and banks. The site of the operations is between the upstream end of the harbour culvert and St. Vigeans railway junction.
Comments	Flooding occurred in October 1976 and February 1977. The calculated maximum flow on 10/11th Feb 1977 was 24 cumecs (Babtie report Dwg No p 3558/3). According to the Council, the scheme cost are £108 000.
Town	Arbroath
Watercourse	Brothock Water
Length of Scheme (km)	1.352
Year of Construction	1988
Maintenance Scheme	Monthly
Construction Cost (£)	£198,000
Construction Cost at 2004 (£)	£421,332
Current Cost Benefit Ratio	20.2

The data forms display information relating to a scheme and its associated defences, subdefences and structures.

All scheme, associated defences, subdefences and structures have an accompanying data form. All data forms list information about the structure, defence or scheme as well as any associated faults and photographs.

All data forms also contain a "Locate on Map" button  which will display the particular scheme, defences, subdefences or structure on the map and highlight the item in yellow.

The Scheme data form also includes a Documents section, details about hydrology, flood extents and additional drawings related to the scheme. These are presented in more detail later in the guide.

Data forms can be viewed by selecting the "Identify" tool and clicking on the item about which data are required to be reviewed. This will only work if the item you selected resides on the "Active Layer". See the section entitled "The Layer List" for details on how to make a layer active. Failing to select the correct "Active Layer" will result in a "Feature Not Found" error.

Scheme data forms can also be loaded by two alternative methods, either directly from the "List of Schemes" dropdown list, or from the results window of a search, both of which are covered in previous sections.

4.2.1 Asset Information




Flood Protection Scheme Summary	
Bridge	14
Channel Improvement	22
Culvert	4
Embankment	1
Wall	32
Surveyed Cross Sections	49

The asset information lists the number and type of defence assets within the selected scheme e.g. walls, embankments, culverts etc. Information regarding a particular defence or structure can be viewed by clicking on the number to the right. Each number will appear highlighted in dark blue as the mouse is moved over it, as displayed.

On clicking the number the user will be presented with one of two forms. Either a defence form or a defence form with subdefences. The only difference between these forms is that a defence form with subdefences will also contain an "Asset Information" section detailing any subdefences a defence form will not.

This is illustrated in the Data Form Flow Diagram in Appendix B.

4.2.2 Documents

Documents	
List of Operations	
Condition Assessment Report	
SFDAD Report	

This section provides links to the List of Operations, the Condition Assessment Report and the SFDAD report for the scheme, [if available](#).




To open either document click on the button to the right of the required document.

To View PDF documents Adobe Acrobat or another suitable PDF viewer must be installed. (These can be downloaded from the internet, frequently free of charge, from sites such as www.adobe.com please note that this may require approval from your IT Department).

4.2.3 Hydrology and Coastal Hydraulics

http://www.scottishflooddefences.gov.uk - Data Forms Frame - Windows Internet Explorer provided by JBA Consulting

 Authority Name: Angus Council
Scheme Name: Arbroath (Brothock Water) Flood Prevention Scheme 1985
SE File Ref: EDY/T/2pt2
Scheme Contact: Roads Department (Engineering)

Hydrology

OS National Grid Reference X	364283
OS National Grid Reference Y	740616
FEH Catchment Area (km ²)	46.82
Adjusted Catchment Area (km ²)	46.75
UBT_1990	0.029
UBT_2004	4.62553802008608E-02
UBT_Adjustment_Method	8
SAAR (mm)	704
Variation From Chosen Method	Rating & gauging check carried out on Brothock Water @ Arbroath before using site as donor
QMED (50% AEP) flow (m ³ /s)	11.79
5 Year Return Period (20% AEP) flow (m ³ /s)	17.38
10 Year Return Period (10% AEP) flow (m ³ /s)	20.96
25 Year Return Period (4% AEP) flow (m ³ /s)	25.37
30 Year Return Period (3.3% AEP) flow (m ³ /s)	26.22
50 Year Return Period (2% AEP) flow (m ³ /s)	28.54
75 Year Return Period (1.3% AEP) flow (m ³ /s)	30.36
100 Year Return Period (1% AEP) flow (m ³ /s)	31.62
200 Year Return Period (0.5% AEP) flow (m ³ /s)	34.62
1000 Year Return Period (0.1% AEP) flow (m ³ /s)	41.30
Climate Change Adjustment	0.250
100 Year Return Period (1% AEP) Flow (m ³ /s) plus Climate	39.53


The Hydrology and Coastal Hydraulics Form can be loaded from the Scheme Data Form by selecting the Hydrology and Coastal Hydraulics button:



To return to the [Data Form](#) click on the Scheme Name navigation link at the top of the common header.

4.2.4 Flood Extents

http://www.scottishflooddefences.gov.uk - Data Forms Frame - Windows Internet Explorer provided by JBA Consulting

 Authority Name: Angus Council SE File Ref: EDY/T/2pt2
Scheme Name: Arbroath (Brothock Water) Flood Scheme Contact: Roads Department
Prevention Scheme 1985 (Engineering)

Flood Extent Standard of Protection

No Records Found

Flood Extent 100yr with Defences

Date	Area (km ²)	Produced By
2005	0.23	JBA

Flood Extent 100yr without Defences

Date	Area (km ²)	Produced By
2005	0.24	JBA

Flood Extent 200yr with Defences

Date	Area (km ²)	Produced By
2005	0.25	JBA

Flood Extent 200yr without Defences

Date	Area (km ²)	Produced By
2005	0.25	JBA

Flood Extent 1000yr with Defences

Date	Area (km ²)	Produced By
2005	0.26	JBA

The Flood Extents Form can be loaded from the [Data Form](#) by selecting the Flood Extents button:



To return to the [Data Form](#) click on the Scheme Name navigation link at the top of the common header.

4.2.5 Drawings and Photographs

http://www.scottishflooddefences.gov.uk - Data Forms Frame - Windows Internet Explorer provided by JBA Consulting

Authority Name: Angus Council
Scheme Name: Arbroath (Brothock Water) Flood Prevention Scheme 1985
SE File Ref: EDY/T/2pt2
Scheme Contact: Roads Department (Engineering)

The Scottish Government

Photographs

Date	Photograph Number	Photograph Description	Comments	SubDefence_ID
06/10/2004	Photographs\Arbroath - 103 \103-0006_IMG.JPG	Floodwall.	Very Good Condition.	
06/10/2004	Photographs\Arbroath - 103 \103-0007_IMG.JPG	Floodwall In.	Very Good Condition.	
06/10/2004	Photographs\Arbroath - 103 \103-0008_IMG.JPG	Wall Expansion.	No Comments	
06/10/2004	Photographs\Arbroath - 103 \103-0009_IMG.JPG	Wall Around Recycling Yard.	Good Condition.	
06/10/2004	Photographs\Arbroath - 103 \103-0012_IMG.JPG	Concrete Wall Onleft Bank.	Good Condition.	
06/10/2004	Photographs\Arbroath - 103 \103-0015_IMG.JPG	Wall Fault , Wall Shifted.	Wall Moved And Lower Than Previous Condition Fair.	
06/10/2004	Photographs\Arbroath - 103 \103-0016_IMG.JPG	Wall In Scrapyard.	Good Condition , Although Check Whether It Leans.	
06/10/2004	Photographs\Arbroath - 103 \103-0019_IMG.JPG	Wall Acting As Floodwall.	Condition Good.	
06/10/2004	Photographs\Arbroath - 103 \103-0023_IMG.JPG	Gabion Wall.	Good Condition Weld Mesh Gabion.	
06/10/2004	Photographs\Arbroath - 103 \103-0024_IMG.JPG	Brick Wall.	Fair Condition.	
06/10/2004	Photographs\Arbroath - 103 \103-0025_IMG.JPG	Obscured Brick Wall.	Probably Good.	
06/10/2004	Photographs\Arbroath - 103 \103-0027_IMG.JPG	Wall Brick Good Condition.	Brick Wall 0-6mm.	
06/10/2004	Photographs\Arbroath - 103 \103-0029_IMG.JPG	D/s Catherine St Walls Not Shown As Floodwalls.	No Comments	
06/10/2004	Photographs\Arbroath - 103 \103-0030_IMG.JPG	Wall And Flapvalve.	Good Condition.	
06/10/2004	Photographs\Arbroath - 103 \103-0034_IMG.JPG	Masonry Wall.	Condition Very Good.	
06/10/2004	Photographs\Arbroath - 103 \103-0033_IMG.JPG	Masonry Wall.	Condition Good.	
06/10/2004	Photographs\Arbroath - 103 \103-0038_IMG.JPG	Masonry And Brick Wall.	Condition Good. Masonry Poor At Base.	

The Drawings and Photographs Form can be loaded from the Scheme Data Form by selecting Drawings and Photographs button:



Moving the cursor over a row highlights it dark blue. Clicking on a highlighted row will load the relevant photograph or PDF document in a separate window.

To View PDF documents Adobe Acrobat or another suitable PDF viewer must be installed. (These can be downloaded from the internet, frequently free of charge, from sites such as www.adobe.com).

To return to the [Data Form](#) click on the Scheme Name navigation link at the top of the common header.

4.3 The Defence Data Form

Authority Name: Scottish Borders Council
Scheme Name: Jed Water Flood Prevention Scheme
1987
SE File Ref: EDY/B/6
Scheme Contact: Technical Services

List of 5 Wall for Scheme 56SCH
Select Wall ID: 207W

Wall SubDefence Summary
Wall Floodgate

Wall Details As Recorded by JBA

Height (m)	0
Level Upstream (mADO)	0
Level Downstream (mADO)	0
Thickness (mm)	0
Freeboard (mm)	0
Length (m)	4.1
Comments	No Comments
Part of FPS	Yes
Constructed	Yes
Location	The wall is located on the right bank of the Jed Water downstream of Canongate Bridge.
Date Survey	Not Surveyed
Bank Location	Right
Condition	Very Good
Grading	In good condition, fully serviceable, no remedial work required. Maintenance to continue as present. No significant defect.
Material	Masonry
Facing Outer	Unknown
Facing Inner	Unknown

Faults
No Faults Found

Photos

Date	Photograph Number	Photograph Description	Comments	SubDefence_ID
22/04/2005	Photographs\Jed Water - 124 \124_0029.JPG	Wall between floodgate and Canongate Bridge	No Comments	


The Defence Data Form displays information regarding the currently selected defence type. The dropdown list provides access to all defences of the current type that belong to the scheme.

This form is also opened by identifying features from the map window.

After selecting a defence from the list the data form is refreshed displaying the data for the new defence.

Certain defences have subdefences associated with them. If a defence has a sub defence associated with it then the defence form will also contain an "Asset Information" section detailing any subdefences.

This is illustrated in the Data Form Flow diagram in Appendix B.

As with all data forms there is a "Locate on Map" button  which will display the particular defence on the map and highlight the item in yellow.

4.4 The Sub-Defence Data Form

http://www.scottishflooddefences.gov.uk - Data Forms Frame - Windows Internet Explorer provided by JB...

Authority Name: Scottish Borders Council SE File Ref: EDY/B/6
Scheme Name: Jed Water Flood Prevention Scheme Scheme Contact: Technical Services
1987

List of 1 Wall Floodgate for Scheme 56SCH
Select Wall Floodgate ID 7FLG

Wall Floodgate Details As Recorded by JBA

Floodgate Description	No Description
Comments	No Comments
Part of FPS	1
Constructed	1
Location Description	No Location Description
Condition Description	Unknown
Grading Description	Unknown
Type of Cabinet Description	Unknown
Material Description	Steel

Faults
No Faults Found

Photos

Date	Photograph Number	Photograph Description	Comments	SubDefence_ID
22/04/2005	Photographs\Jed Water - 124 \124_0023.JPG	Floodgate for access to Richmond Row.	Floodgate leading to Richmond Row.	7FLG
22/04/2005	Photographs\Jed Water - 124 \124_0025.JPG	Seal on base of floodgate slightly loose.	Floodgate leading to Richmond Row.	7FLG
22/04/2005	Photographs\Jed Water - 124 \124_0026.JPG	The seal underneath the floodgate.	No Comments	7FLG
22/04/2005	Photographs\Jed Water - 124 \124_0027.JPG	Housing for gate opening	No Comments	7FLG

The Sub-defence Data Form works in a similar way to the Defence Data Form however it does not contain an "Asset Information" section.



It includes a back button to allow the user to navigate back up to the parent defence data form.

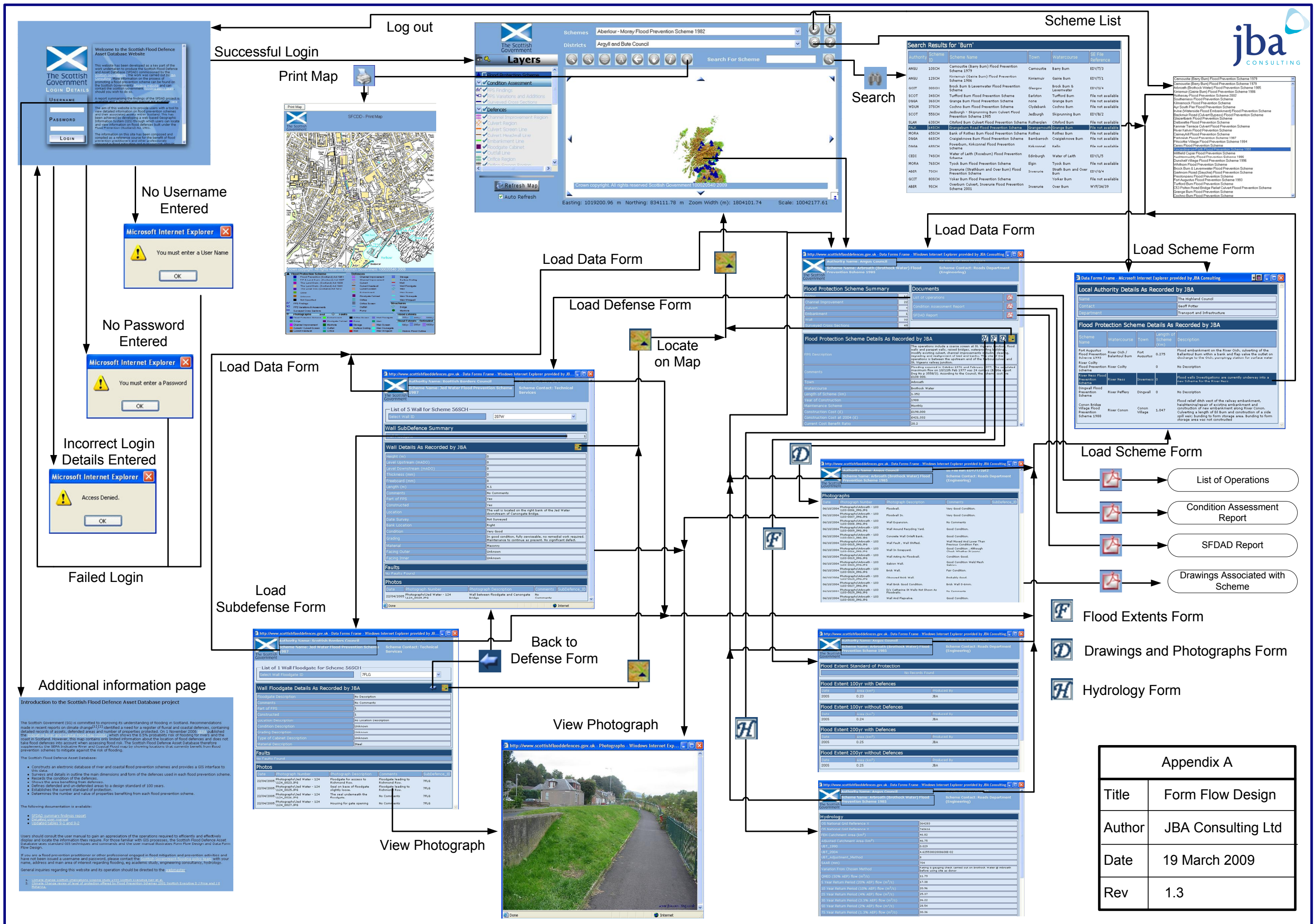
The dropdown list works in the same way as on the Defence Form. When a sub-defence is selected from the list the sub-defence data form is refreshed to display the new information.

Navigation around the data forms can be seen on the Data Form Flow Diagram in Appendix B.

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Appendix A: - Form Flow Design

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Appendix A	
Title	Form Flow Design
Author	JBA Consulting Ltd
Date	19 March 2009
Rev	1.3

Appendix B: - Data Form Flow Design

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Scheme Data Form

http://www.scottishflooddefences.gov.uk - Data Forms Frame - Windows Internet Explorer provided by JBA Consulting

Authority Name: Angus Council SE File Ref: EDY/T/2pt2
Scheme Name: Arbroath (Brothock Water) Flood Prevention Scheme 1985 Scheme Contact: Roads Department (Engineering)

Bridge	14
Channel Improvement	22
Culvert	4
Embankment	1
Wall	32
Surveyed Cross Sections	49

List of Operations	
Condition Assessment Report	
SFDAD Report	

FPS Description	The operations include a coarse screen at St. Vigean's Junction, flood walls and parapet walls, raised bridges, waterproofing buildings, modify existing culvert, channel improvements including clearing, regrading and realignment of bed and banks. The site of the operations is between the upstream end of the harbour culvert and St. Vigean's railway junction.
Comments	Flooding occurred in October 1976 and February 1977. The calculated maximum flow on 10/11th Feb 1977 was 24 cumecs (Babtie report Dwg No p 3558/3). According to the Council, the scheme cost are £108 000.
Town	Arbroath
Watercourse	Brothock Water
Length of Scheme (km)	1.352
Year of Construction	1988
Maintenance Scheme	Monthly
Construction Cost (£)	£198,000
Construction Cost at 2004 (£)	£421,332
Current Cost Benefit Ratio	20.2

Select Embankment

Flood Protection Scheme Summary	
Channel Improvement	1
Embankment	1
Wall	1
Surveyed Cross Sections	14

Select Wall

Flood Protection Scheme Summary	
Channel Improvement	1
Embankment	2
Wall	1
Surveyed Cross Sections	14

Load Defence Data Form with Subdefences

http://www.scottishflooddefences.gov.uk - Data Forms Frame - Windows Internet Explorer provided by JB...

Authority Name: Scottish Borders Council SE File Ref: EDY/B/6
Scheme Name: Jed Water Flood Prevention Scheme 1987 Scheme Contact: Technical Services

List of 5 Wall for Scheme 56SCH
Select Wall ID: 207W

Wall Floodgate	1
----------------	---

Height (m)	0
Level Upstream (mAOD)	0
Level Downstream (mAOD)	0
Thickness (mm)	0
Freeboard (mm)	0
Length (m)	4.1
Comments	No Comments
Part of FPS	Yes
Constructed	Yes
Location	The wall is located on the right bank of the Jed Water downstream of Canongate Bridge.
Date Survey	Not Surveyed
Bank Location	Right
Condition	Very Good
Grading	In good condition, fully serviceable, no remedial work required. Maintenance to continue as present. No significant defect.
Material	Masonry
Facing Outer	Unknown
Facing Inner	Unknown

No Faults Found

Date	Photograph Number	Photograph Description	Comments	SubDefence_ID
22/04/2005	Photograph\Jed Water - 124_124_0029.JPG	Wall between floodgate and Canongate Bridge	No Comments	

Select Wall Floodgate

Wall SubDefence Summary	
Wall Floodgate	1

Load Sub Defence Data Form

http://www.scottishflooddefences.gov.uk - Data Forms Frame - Windows Internet Explorer provided by JB...

Authority Name: Scottish Borders Council SE File Ref: EDY/B/6
Scheme Name: Jed Water Flood Prevention Scheme 1987 Scheme Contact: Technical Services

List of 1 Wall Floodgate for Scheme 56SCH
Select Wall Floodgate ID: 7FLG

Floodgate Description	No Description
Comments	No Comments
Part of FPS	1
Constructed	1
Location Description	No Location Description
Condition Description	Unknown
Grading Description	Unknown
Type of Cabinet Description	Unknown
Material Description	Steel

No Faults Found

Date	Photograph Number	Photograph Description	Comments	SubDefence_ID
22/04/2005	Photograph\Jed Water - 124_124_0023.JPG	Floodgate for access to Richmond Row.	Floodgate leading to Richmond Row.	7FLG
22/04/2005	Photograph\Jed Water - 124_124_0025.JPG	Seal on base of floodgate slightly loose.	Floodgate leading to Richmond Row.	7FLG
22/04/2005	Photograph\Jed Water - 124_124_0026.JPG	The seal underneath the floodgate.	No Comments	7FLG
22/04/2005	Photograph\Jed Water - 124_124_0027.JPG	Housing for gate opening	No Comments	7FLG

Load Defence Data Form

http://www.scottishflooddefences.gov.uk - Data Forms Frame - Windows Internet Explorer provided by JBA Consulting

Authority Name: Angus Council SE File Ref: EDY/T/2pt2
Scheme Name: Arbroath (Brothock Water) Flood Prevention Scheme 1985 Scheme Contact: Roads Department (Engineering)

List of 1 Embankment for Scheme 11SCH
Select Embankment ID: 156EMB

Height (m)	1.23
Crest Level Upstream (mAOD)	6.22
Crest Level Downstream (mAOD)	6.22
Side Slope (degrees)	25
Freeboard (mm)	0
Length (m)	61
Comments	No Comments
Part of FPS	N/A
Constructed	Yes
Location	The embankment is located on the left bank of the Brothock Water south of the Industrial Estate.
Date Survey	15/12/2004
Material	Earth
Bank Location	Left
Condition	Good
Grading Description	Minor defects, non-urgent. Minor routine maintenance work required. In reasonable condition, some increase in maintenance needed, probably not more than 5% affected with slight defect.

No Faults Found

Appendix B

Title	Data Form Flow Design
Author	JBA Consulting Ltd
Date	19 March 2009
Rev	1.3